

10/087/54

Abstract of the Disclosure

5 An apparatus for controllably generating sparks  
is provided. The apparatus includes a spark generating  
device; at least two output stages connected to the spark  
generating device; means for charging energy storage  
10 devices in the output stages and at least partially  
isolating each of the energy storage devices from the  
energy storage devices of the other output stages; and, a  
logic circuit for selectively triggering the output stages  
to generate a spark. Each of the output stages preferably  
15 includes: (1) an energy storage device to store the  
energy; (2) a controlled switch for selectively  
discharging the energy storage device; and (3) a network  
for transferring the energy discharged by the energy  
storage device to the spark generating device. In  
20 accordance with one aspect of the invention, the logic  
circuit, which is connected to the controlled switches of  
the output stages, can be configured to fire the stages at  
different times, in different orders, and/or in different  
combinations to provide the spark generating device with  
output pulses having substantially any desired waveshape  
and energy level to thereby produce a spark having  
substantially any desired energy level and plume shape at  
the spark generating device to suit any application.